Seismic Line Crossings of Streams, East of Fort Nelson, BC

Special Investigation Report

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Introduction

This report provides the results of the Forest Practices Board's investigation into seismic line stream crossings near Little Hay River in Northeastern BC. While visiting Fort St. John in June 2000 during its special project examining forest development planning, the Board received photographs of newly completed seismic lines in the Little Hay River area near Fort Nelson. The photos appeared to indicate that stream crossings did not comply with the requirements of the *Forest Practices Code of British Columbia Act* and regulations (the Code). On July 24, 2000, the Board decided to initiate a special investigation into the matter. The investigation examined compliance with the Code, and the appropriateness of government enforcement of the Code, related to those stream crossings.

Many people would not associate seismic line activity with the Forest Practices Code. The following information helps provide some context for this special investigation and explains how seismic activities are regulated under the Code.

Seismic activities and the Forest Practices Code

Function and scale of seismic activity in Northeastern BC

Seismic lines are used to survey subsurface resources for natural gas and oil exploration. Seismic line surveys require clearing trees in straight lines across the landscape. The clearing width of a seismic line is a maximum of six metres. These corridors stretch across the northern landscape for many kilometres, crossing water bodies and forested and non-forested land.

In 1999, throughout northeastern British Columbia, 6,913 kilometres of seismic line was constructed. In 2000, during a considerable increase in seismic exploration, 10,362 kilometres of seismic line was constructed. Some seismic projects involved clearing timber for new lines, and some projects used existing seismic lines.

Authority and approval for seismic activities under the Code

The Oil and Gas Commission (the Commission) regulates activities associated with exploration for, and production of, crude oil and natural gas in the province of British Columbia. The Commission reviews applications, issues permits, and monitors and inspects activities related to the oil and gas sector.

Under section 17 of the *Oil and Gas Commission Act*, the Commission is given the power to issue licences to cut, and to approve logging plans for oil and gas exploration, including seismic lines. A licence to cut is issued under Section 51 of the *Forest Act*. Section 51 also provides a licence to cut in the form of a master agreement. Cutting permits to harvest the timber can then be issued under the master agreement.

Forest Districts with Oil and Gas Activity

In addition, when requested by government officials, the *Forest Practices Code of British Columbia Act* requires licence holders to prepare and obtain approval of logging plans. The logging plan is the only operational Code plan that is required for seismic lines. It details provisions for environmental protection as required by the Forest Practices Code.

Enforcement of the Code for seismic activities

Once seismic activities are approved and work begins, the Commission is responsible for monitoring these activities for compliance with the logging plan. However, the Commission does not have enforcement powers with respect to possible non-compliance with the logging plan. Commission staff must report any suspected Code non-compliance to a Code ministry – either the Ministry of Forests, the Ministry of Energy and Mines or the Ministry of Water, Land and Air Protection. These ministries currently have the power to enforce the Code.

The Investigation

Background

On October 21, 1999, Impact Exploration Ltd. (the licensee) submitted its proposal to develop the Little Hay seismic line project for approval by the Commission. On November 18, 1999, the Commission issued a cutting permit to the licensee under the authority of a master agreement, as per section 51 of the *Forest Act*. The Commission also approved the logging plan submitted by the licensee, under the Forest Practices Code.

This seismic project consisted of approximately 52 kilometres of new seismic line construction involving right-of-way clearing and 21 stream crossings. The licensee began clearing the seismic line in early December 1999. On January 28, 2000, the licensee notified Commission staff that it was finishing the project, and asked Commission staff to inspect the operation. Commission staff did not immediately inspect the operation, stating they would inspect the work later. On April 5, 2000, the Commission sent the licensee pictures of the project taken during an aerial inspection, and asserted that the licensee had failed to remove snowfill within some stream crossings. Snowfills are temporary stream crossings built by filling and compacting the stream channel with clean snow. Removal of the snowfill crossings was a requirement of the logging plan.

In response to the Commission's concerns, the licensee inspected five of the project's stream crossings on April 25, 2000. The licensee requested that Commission staff accompany them on the inspection, but as it was the Easter weekend, Commission staff declined.

On May 19, 2000, the licensee submitted a report to the Commission, based on the licensee's inspection of the project. The licensee provided the report and pictures voluntarily. The licensee maintained that it had properly removed the snowfill crossings of the streams prior to the Commission's aerial inspection.

Relevant legislation

The Board's jurisdiction is limited to the *Forest Practices Code of British Columbia Act* and regulations made under this Act. For the purposes of this investigation, the Board only examines issues as they relate to the Forest Practices Code. The relevant legislation is the *Forest Practices Code of British Columbia Act* (FPCA); the *Operational Planning Regulation* (OPR); and the *Timber Harvesting Practices Regulation* (THPR).

Specifically:

FPCA, section 67 –	General: forest practices in accordance with operational plans
FPCA, section 11 –	Logging plans: content
FPCA, section 17 – and lakes	General planning requirements: identify and classify streams, wetlands
OPR, section 33 –	Logging plan content: describe the riparian class of streams
THPR, section 21 –	Temporary stream crossings
THPR, section 23 –	Constraining slash and debris in and around aquatic environments

Compliance with the Forest Practices Code

This investigation examines compliance with the Code on the Little Hay seismic line project with specific reference to:

- stream classification;
- logging plans; and
- potential for damage to fish streams.

Stream classification

The licensee was required by the Code to classify streams and to abide by the conditions in the logging plan. Stream classifications were shown in the licensee's logging plan.

Section 11 of the *Forest Practices Code of British Columbia Act* specifies the content requirements for logging plans. Section 17 requires the licensee to identify and classify streams, wetlands and lakes if required by the regulations. Section 33 of the *Operational Planning Regulation* specifies that the licensee must ensure the logging plan describes the riparian class, width of the riparian reserve zone and the width of the riparian management zone for streams. The Code classifies streams, in part, on the basis of the average channel width and the presence of fish.

The logging plan approved by the Oil and Gas Commission classified all the streams as riparian class 5. Class 5 streams are considered non-fish bearing and are greater than three metres in width. The plan states that there will be no riparian reserve zones on the streams, but there will be 30-metre riparian management zones. The licensee could harvest trees to the stream edge, but there would be other restrictions on what the licensee could do in the riparian management zone.

The licensee stated it classified streams based on an understanding of the requirements explained at a meeting held in Fort St. John about four years ago, arranged by the Ministry of Environment, Lands and Parks (MELP). The licensee advised the Board that the government does not have an inventory of streams available as reference. Therefore, the licensee understood stream classification would be determined based on responsible decision-making practices and diligent research. In this case, the licensee classified the streams as non-fish bearing.

The 1998 *Fish Stream Identification Guidebook* identifies the procedures for classifying streams. The guidebook states:

When fish-stream identifications are performed, documentation should specify whether fish-bearing status is assigned on the basis of either (a) an acceptable existing fish inventory or one recently completed by the proponent, or (b) gradient criteria alone.

The licensee did not conduct a fish inventory or determine what the stream gradient was. The licensee stated that the streams contained numerous beaver dams and they classified the streams as non-fish bearing on that basis. There is no indication that the licensee verified whether the beaver dams were a complete barrier to fish. The Board notes that even though some of the streams in question did have beaver dams, this did not preclude the presence of fish upstream. Under the Code, if no inventories or gradient assessments have been completed, streams must be classified, by default, as fish bearing.

The licensee did not correctly classify streams, according to section 17 of the *Forest Practices Code of British Columbia Act* and section 33 of the *Operational Planning Regulation*. In the absence of field inventories, the licensee failed to classify streams to the default classification of fish bearing.

Compliance with the logging plan

Section 67 of the *Forest Practices Code of British Columbia Act* requires a licensee to follow operational plans, such as a logging plan.

Section 21 of the *Timber Harvesting Practices Regulation* (THPR) prohibits constructing a temporary stream crossing unless authorized in a logging plan or in an amendment to the logging plan. Amendments must be approved in writing. Section 21 also states that a temporary stream crossing must be located, constructed and used in a manner that protects the stream channel and stream bank. Any proposed changes to an approved operational plan require an amendment. The Board examined the approved logging plan requirements for the location and removal of stream crossings.

a) Stream crossing locations

On October 21, 1999, the licensee submitted its logging plan for the Little Hay seismic line project. The logging plan includes a map showing where the seismic line and stream crossings are located. The logging plan indicates the location and type of each stream crossing needed for the project. All of the stream crossings were temporary crossings that were to be removed at the completion of the project.

The licensee said that in December 1999, during the clearing of the seismic lines, it had asked the Ministry of Forests (MOF) about using alternative stream crossing locations. The ministry said it referred the licensee to the Commission, which was responsible for approving amendments to the logging plan. However, the licensee did not apply to have the Commission approve the amended plan in writing, to allow for alternative crossings.

On March 27, 2000, as required by the Commission, the licensee submitted a final plan showing what the project had accomplished. The final plan illustrates that the licensee made an unauthorized crossing north of crossing #21. As well, crossings #4 and #5 on seismic line #205 are shown as "mechanical cut" instead of "hand cut," contrary to the logging plan. Mechanical cut crossings allow the licensee to harvest up to six metres wide and authorize a crossing of the stream with equipment (using a snowfill crossing). A hand cut crossing limits the clearing width to 1.5 metres, and does not allow the licensee to cross the stream with equipment.

The licensee did not completely follow the logging plan, contrary to section 67 of the *Forest Practices Code of British Columbia Act*. The licensee crossed some streams in locations not authorized by the logging plan. The licensee also failed to comply with section 21 of the *Timber Harvesting Practices Regulation* by constructing a temporary stream crossing, using an alternative method, without authorization.

b) Removal of snowfill crossings

On April 5, 2000, Commission staff conducted an aerial inspection of seismic line crossings in the Little Hay River area. Commission staff took photographs, then notified the licensee that some snowfill crossings were still present. One requirement of the logging plan is to maintain

the integrity of the stream bank when creating and removing snowfill crossings. The licensee's report of May 19, 2000, asserts that the licensee removed the crossings in January. The licensee's pictures, taken April 25, 2000, show piles of debris at the stream crossing. This indicates that the licensee attempted to remove the crossings. The licensee stated that any debris that was left in the stream crossing could not be removed without disturbing the channel banks or breaking the ice, thereby introducing more debris into the streams. The licensee removed the crossings to the extent it felt appropriate without disturbing the stream banks, in order to comply with the logging plan.

Without further evidence from a timely ground inspection, the Board cannot conclude whether removal of the snowfill crossings was adequate in the circumstances.

Potential for damage to fish streams

Section 23 of the *Timber Harvesting Practices Regulation* states that a person harvesting timber must not deposit a volume of slash or debris, capable of damaging fish habitat or reducing water quality, into a fish stream or a stream that can move the debris into a fish stream.

Evidence of what happened to the stream crossings is contained solely in the licensee's May 19, 2000, report. The report indicates that some dirt and debris was left at crossing #21 and at the unnumbered crossing north of crossing #21. The pictures included with the report illustrate conditions that represent a potential for damage. The licensee reports that some debris was left in the crossing, because it was frozen into the stream. The exact amount of debris that likely entered the stream is unknown. The pictures alone do not provide sufficient and conclusive evidence to determine that there was damage to fish streams. Ideally, an on-site inspection by the Commission or Code enforcement staff should have occurred close to the time of the licensee's inspection on April 25, 2000.

Without timely ground verification, the Board cannot determine that slash and debris capable of damaging fish habitat or reducing water quality was deposited in the stream.

Government enforcement of the Forest Practices Code

The purpose of government enforcement is to promote compliance with the Code. Determining the appropriate enforcement action for a potential or actual incident of non-compliance requires sound judgement by staff responsible for Code enforcement. Field inspections and monitoring are the most common activities in Code enforcement programs. If problems are discovered as a result of these inspections, there are a number of available tools to promote compliance. These tools include verbal and written instructions, stop-work orders, administrative penalties, prosecution and licence cancellation.

Chronology of events surrounding finalization of the project

On March 27, 2000, the licensee submitted a final plan that reports what the Little Hay River project had accomplished. On April 5, 2000, both Commission and MELP staff inspected several oil and gas operations by helicopter. Immediately after the aerial inspection, the Commission notified the licensee that some snowfill crossings remained, in contravention of its logging plan. On April 6, 2000, Commission staff notified MOF that the final plan for the project showed that seismic line locations varied up to 200 metres from the approved logging plan. No mention was made of other issues noted during the aerial inspection.

On April 25, 2000, the licensee conducted its own inspection of the Little Hay River crossings and took photos. On May 19, 2000, the licensee offered those photos, along with a report, to the Commission. The report asserted that the crossings were removed in January in accordance with the logging plan. On June 7, 2000, the Commission forwarded the licensee's report and photos via e-mail to MOF. At the same time, the Commission inquired about the licensee's assertion that MOF had approved the alternate stream crossings – specifically the change from hand cut to mechanical cut on crossing #12. MOF staff replied that they did not approve these changes. Commission staff did not explicitly ask MOF to investigate non-compliance with the stream crossings. Instead, they asked for feedback.

Enforcement of the provisions of the logging plan

a) Seismic line locations

Although Commission staff told MOF that the seismic lines varied from their approved locations, they did not ask the ministry to investigate possible non-compliance with the logging plan. It appears both MOF and the Commission each assumed the other agency was checking final plans for compliance with logging plan provisions.

Neither the Commission nor MOF examined the final plan for compliance with the Code. The Board found a lack of policy and procedures for enforcement of the Code between the Code agencies and the Commission. There is no formal and structured system in place to communicate findings from monitoring and inspections that may require further investigation.

b) Snowfill crossings on streams

Removal of the snowfill crossings was a requirement of the logging plan. The MELP staff person who inspected the operations on April 5, 2000, did not follow up on the issues relating to the stream crossings. Commission staff concerned with the Little Hay River project did not formally notify the licensee of the concerns in writing, but discussed the issues with the licensee, mostly by phone.

After receiving the licensee's April 25, 2000 photos, Commission staff brought the issue of the stream crossings to the attention of another MELP staff person. That MELP staff person explored the possibility of contraventions of the *Water Act*, but not the *Forest Practices Code of British Columbia Act*. MELP staff stated that, because of limited resources, they would only focus on legislation where MELP was the sole enforcement agency. By not pursuing Code contraventions, they left enforcement of the Code to MOF. MELP eventually decided there was not sufficient evidence to proceed with charges under the *Water Act*. Almost a year later, on March 5, 2001, MELP wrote the licensee regarding the Little Hay River stream crossings. MELP notified the licensee that snowfill crossings containing slash and debris are contrary to the *Water Act*, the *Forest Practices Code of British Columbia Act* and, in some cases, the *Fisheries Act of Canada*. The ministry warned that, in the future, such practices should not be repeated, and if they were, the ministry would prosecute.

Although the Commission did not ask MOF to officially consider possible stream crossing contraventions, MOF staff stated that they did so anyway. MOF staff stated that the digital photos they received from the Commission on June 7, 2000, provided potential evidence of non-compliance with the riparian provisions of the Code. However, MOF had no additional

evidence to support this possible contravention. Ministry staff stated that the evidence of a contravention was weak and they did not have the resources to conduct further investigation of the stream crossings. Furthermore, due to spring freshet, any evidence of non-compliance would likely have washed away.

MOF staff advised the Board that, in their view, the April 25, 2000, pictures showed dirty snow, sticks and grass in the snowfill. However, they noted that the terrain, the nature of the streams and the licensee's notes indicate that the licensee's approach to the construction and deactivation made sense. MOF therefore did not discuss the adequacy of the crossings with the licensee. MOF staff asserted that using dirty fill for snowfill crossings is acceptable, provided the fill is removed before spring melt. The district manager stated that MOF does not approve the use of dirty fill in any stream, but acknowledged that snowfill crossings may end up containing some soil and debris.

In contrast, MELP and the federal Department of Fisheries and Oceans (DFO) did not agree with this interpretation of the practice of using snowfill crossings. DFO stated that best management practices require stream crossings to be constructed with clean snow only.

The purpose of enforcement is to promote compliance with the Code. Compliance requires clear communication of expected practices to ensure a licensee understands what is required. The expectations for snowfill crossing compliance appear to differ among the Code ministries and DFO. Code provisions for stream crossings—especially regarding snowfill use—are not precise and explicit. Therefore, MOF officials must arrive at their own interpretations of what the Code requires. MELP staff are more likely to use *Water Act* provisions as a tool to consider the appropriateness of snowfill crossings, because they are most comfortable working with that legislation. Such an interpretation may vary significantly from interpretations used by MOF staff. While this regulatory ambiguity, gap and overlap creates a problem for licensees in understanding what the expectation is, it also creates a problem for the various agency staff in understanding precisely what is enforceable.

In this case, monitoring by the Commission revealed potential non-compliance with an approved logging plan. The Commission should have discussed the issues with the appropriate Code ministries to determine whether an investigation was warranted, and who should undertake it. MELP did communicate its views on the stream crossings in writing to the licensee – albeit 10 months later. However, these views appear inconsistent with other ministry views of stream crossings.

In conclusion, there was a lack of consistent expectations by government for the licensee's compliance with the logging plan. Timely enforcement of the Code provisions in the logging plan were not communicated between, and effectively co-ordinated by, the various agencies responsible. Government's enforcement of the Code did not ensure compliance with the logging plan for the Little Hay River project, nor did it ensure that the licensee would not repeat the practice.

Conclusions

This special investigation originated from concerns with seismic line crossings and government enforcement in the Little Hay River area near Fort Nelson.

In terms of compliance with the Code, the investigation found that the licensee did not correctly classify streams and did not completely follow the approved logging plan with respect to stream crossing locations and methods. The Board could not determine whether the removal of snowfill crossings was adequate and whether or not this resulted in depositing slash and debris into streams, potentially damaging fish habitat.

The Board found a lack of policy and procedures for enforcement of the Code among the Code agencies and the Commission. Government's enforcement of the Code did not ensure compliance with the logging plan for the Little Hay River project, nor did it ensure that the licensee would not repeat the practice.

Commentary

In fostering continued improvements to forest practices on Crown land, the Board wishes to share the following general information learned as a result of the Little Hay River investigation. The issues identified below will be further discussed in an upcoming special report on oil and gas activities.

Enforcement related to oil and gas activities under the Code

The oil and gas industry is regulated by a number of provincial and federal statutes including: Oil and Gas Commission Act; Pipelines Act; Petroleum and Natural Gas Act; Water Act; Forest Practices Code of British Columbia Act; and the Fisheries Act of Canada. Jurisdiction for regulating these acts falls to several government agencies. To help streamline regulatory processes for the oil and gas industry, the Oil and Gas Commission was created in October 1998. The Commission was intended to provide a "one-stop shopping" regulatory service for the oil and gas sector.

Normally, ministries regulating an Act have the powers to review, approve, monitor, inspect and enforce activities within their jurisdiction. However, when the Commission was created, it was not empowered to enforce provisions related to oil and gas activities covered by the *Forest Practices Code of British Columbia Act* and its regulations (the Code).

Section 17(5) of the *Oil and Gas Commission Act* states that "appropriate officials under the *Forest Practices Code of British Columbia Act*, and not the Commission," continue to be responsible for enforcing the provisions of that Act. Therefore Code enforcement remains with the Ministry of Forests; Ministry of Environment, Lands and Parks (now Water, Land and Air Protection (MWLAP)) and the Ministry of Energy and Mines. The Commission has no jurisdiction for enforcement of the Code as it relates to oil and gas activities. However, the Commission can undertake field monitoring and inspections for activities related to the Code.

The Ministry of Forests inspects oil and gas activities, focusing on timber harvesting practices. MWLAP focuses its inspections on environmental practices. If non-compliance is found by any agency, only MOF and MWLAP can impose remedial or punitive measures, where appropriate.

The Board found a lack of policy and procedures for the compliance and enforcement of the Code among the Code agencies and the Commission. There is no formal and structured system in place to communicate inspection results. This hampers all agencies' ability to detect problems, undertake investigations and provide feedback to all parties. Without a formal framework for enforcement, ensuring licensees understand what is expected of them will be haphazard.

Since this investigation started, the Oil and Gas Commission has initiated a review of its compliance and enforcement framework. The Commission is making use of a stakeholder work group to examine the role of the Commission's compliance and enforcement branch (C&E branch). The Commission notes that, as oil and gas activity levels increase, the importance of focusing its resources more strategically on compliance and community relations also increases. The Commission is exploring a proposed shift in the way the C&E branch administers its program. A strategic inspection program is expected to remain as a cornerstone of the program, but inspections will be managed using a prioritized, risk-assessment approach.

Other issues related to Code enforcement

The Commission advised the Board that it has 10 inspectors on staff, with one inspector assigned to monitor and inspect seismic line activities. The other inspectors are assigned to monitor and inspect pipelines, wells and other developments.

The Commission is based in Fort St. John and does not have field staff in any other communities in the region. Prior to the creation of the Commission, oil and gas licensees worked with three MOF offices – Fort St. John, Dawson Creek and Fort Nelson. Licensees continue to call MOF offices for advice and services despite the transfer of responsibility to the Commission. MOF no longer has responsibility or authority to provide advice or approve amendments or plans. With the Commission located in one community hundreds of kilometres away from many field activities, licensees may be left frustrated and confused. The current structure makes it extremely difficult for operators to get on-site time with government staff to ensure their operations are appropriate. Given the nature of the business, it is not practical for an operator to stop work for several days or weeks while waiting for government staff to provide advice on unapproved issues that the licensee may encounter.

The Fort Nelson Forest District manager advised the Board that district resources for monitoring, inspecting and enforcing Code compliance on oil and gas activities were reduced after the Commission was established. The significant increase in oil and gas activities in recent years has put further strains on the ministry's resources.

Guidance for appropriate snowfill crossings

Section 23 of the *Timber Harvesting Practices Regulation* states that a person harvesting timber must not deposit a volume of slash or debris, capable of damaging fish habitat or reducing water quality, into a fish stream or a stream that can move the debris into a fish stream. The Code does not provide any quantitative measure of what volume of slash and debris could be deposited without damaging fish habitat or water quality.

In the Little Hay River investigation, the Board heard contrary opinions (based on the photographs) about whether or not debris was deposited in streams. The opinions also differed as to whether or not the amounts of slash and debris were capable of harming fish habitat or water quality. It is clear that different agencies and staff within the agencies have different opinions as to whether any dirt or debris can be placed in a snowfill crossing. The judgement of whether or not the snowfill was clean is subjective.

On this subject, the draft *Code Stream Crossing Guidebook for Fish Streams* provides some indication of what is acceptable. Depositing dirt and debris in snowfill is not recommended in the draft guidebook. Code guidebooks are not law but, once approved, they are considered to provide useful guidance.

The Board acknowledges that it is virtually impossible to construct and maintain a snowfill crossing without some dirt and debris getting into the stream. However, it is imperative that dirt and debris be minimized or prevented from entering streams. The draft guidebook provides some useful advice about how to do this. The Board also notes that the practice of using contaminated snowfill, with the intent to remove the fill prior to spring, comes with risks. Considering that last year saw 10,362 kilometres of seismic line constructed, with the potential for tens of thousands of stream crossings, there is a concern with possible cumulative impacts of debris and dirt from these many stream crossings.

The Fort Nelson Forest District manager is considering recommending that government develop policy guidance on how to interpret section 23 of the *Timber Harvesting Practices Regulation*. The district manager suggests that government look at how to apply consistent standards to interpret an acceptable threshold for debris deposited into streams.

The Commission has recently developed a bulletin that explains the requirements for snowfills and ice bridges. The bulletin thoroughly discusses the requirements for planning, construction and removal of ice bridges. Commission staff now provide this bulletin to licensees prior to the start of projects. However, there needs to be a common understanding among the Commission and the Code enforcement agencies as to what is acceptable in terms of snowfill crossings.

Without any standards in the Code, or advice contained in an approved guidebook, achieving and measuring compliance in terms of snowfill crossings will be highly variable. In this regulatory vacuum, measuring compliance is left almost entirely to the opinion of individual enforcement staff. Given that MOF, MWLAP or Commission staff can inspect oil and gas activities, licensees are likely to receive varying and contradictory advice. The result may be that improper stream crossings are used. It is imperative that all licensees and government agencies have a common understanding of what are the acceptable forest practices associated with snowfill crossings for seismic and other activities.

Recommendations

The Board is making the following recommendations under section 185 of the *Forest Practices Code of British Columbia Act*:

1. Prior to 2001-2002 winter seismic operations, MOF, MWLAP and the Commission should meet, discuss and agree on the expectations for snowfill crossings. The agencies should also agree on an approach for enforcement of the Code, in the absence of a formal, structured

enforcement system. The intent is to ensure that all enforcement staff give consistent direction and enforcement regarding stream crossings. Staff from Fort Nelson, Fort St. John and Dawson Creek should participate in the meeting. At the conclusion of the meeting, the Commission should consider the need for further communications to licensees regarding government's expectations for stream crossings.

2. Government should complete the draft *Stream Crossing Guidebook for Fish Streams* to provide licensees and agency staff with advice on minimizing dirt and debris entering streams as a result of forest operations and stream crossings.

3. The Oil and Gas Commission should complete its review of the compliance and enforcement framework. In implementing a new enforcement framework, special attention should be given to interministry responsibilities and communications. The Commission's review of its enforcement program should look at:

   - the availability of staff to conduct inspections and respond to licensee inquiries;
   - the protocols and procedures for working with MOF and MWLAP to link inspection, activity, compliance determinations and enforcement action where warranted;
   - clear establishment of roles and responsibilities among agencies; and
   - government should support its field staff by ensuring adequate training, funding and staff levels are provided for compliance and enforcement.

In accordance with section 186 of the *Forest Practices Code of British Columbia Act*, the Board requests that:

- The Oil and Gas Commission advise the Board by December 31, 2001, how it has addressed recommendation 1;
- The Ministry of Water, Land and Air Protection advise the Board by June 1, 2002, as to how government has addressed recommendation 2; and
- The Oil and Gas Commission advise the Board by June 1, 2002, as to how it has addressed recommendation 3.